Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of the claims in the application:

Listing of Claims:

1. (Currently Amended) A method ~~of controlling the current condition of a reticle, the method~~ comprising: processing and analyzing test data ~~indicative~~ <u>obtained from at least a portion</u> of a test pattern produced on an article using ~~the~~ <u>a</u> reticle when in ~~the~~ <u>a</u> current condition, and reference data ~~indicative~~ <u>obtained from at least a portion</u> of a reference pattern previously produced on an identical reference article using said reticle when considered to be of a satisfied condition, and generating output data indicative of the current condition of said reticle.

2. (Currently Amended) The method of claim 1, wherein said processing and analyzing includes processing at least one of the reference and test data to obtain optimized data indicative of <u>at least one of</u> the <u>reference</u> pattern <u>and the test pattern</u> substantially free of effects caused by defects other than those caused by said reticle.

3. (Original) The method of claim 2, wherein said effects, caused by the defects other than those caused by the reticle, are identified as effects randomly appearing in the pattern-indicative data.

4. (Original) The method of claim 1, wherein said test pattern is produced on a test article having a layer material structure identical to that of the reference article.

5. (Original) The method of claim 1, wherein the reference pattern and the test pattern are produced on different areas of the same reference article.

6. (Original) The method of claim 1, wherein the reference pattern and the test pattern are produced in, respectively, reference and test areas each having a single-layer structure.

7. (Original) The method of claim 1, wherein the reference pattern and the test pattern are produced in, respectively, reference and test areas, each having a multi-layer stack structure.

2

8. (Original) The method of claim 1, wherein the data indicative of the pattern is obtained using bright field inspection of at least a portion of the pattern.

9. (Original) The method of claim 1, wherein the data indicative of the pattern is obtained using dark field inspection of at least a portion of the pattern.

10. (Original) The method of claim 1, wherein the data indicative of the pattern is obtained using inspection at least a portion of the pattern with a charged particles beam.

11. (Original) The method of claim 1, wherein the data indicative of the pattern is obtained by applying optical critical dimension measurements to at least a portion of the pattern.

12. (Original) The method of claim 1, wherein the data indicative of the pattern includes several similar, periodically appearing, pattern features.

13. (Original) The method of claim 12, comprising applying image processing to the data indicative of the pattern to correct for defects in an image of the pattern feature.

14. (Original) The method of claim 13, wherein said correcting comprises dividing the image of the defective pattern feature into image parts and replacing the defective image part by a corresponding image part of an image of another pattern feature.

15. (Previously Presented) The method of claim 1, comprising, upon obtaining the reference data, storing the reference data to be used later for the data processing analyzing when controlling of the current condition of the reticle is needed.

16. (Previously Presented) The method of claim 1, comprising, upon producing the reference pattern, storing the reference pattern to be used later to provide said reference data when controlling of the current condition of the reticle is needed.

17. (Previously Presented) The method of claim 1, wherein the condition of the reticle is determined after an etching stage of a lithography process.

18. (Previously Presented) The method of claim 1, wherein the condition of the reticle is determined prior to carrying out an etching stage of a lithography process.

19. (Previously Presented) The method of claim 1, wherein the reticle is used for semiconductor wafers production.

20. (Currently Amended) The method of claim 19, wherein the <u>test</u> pattern is produced on a bare wafer.

21. (Original) The method of claim 19, wherein the test pattern is produced on a wafer having a layer material structure similar to that of the production wafer.

22. (Original) The method of claim 19, wherein said test pattern is produced on the production wafer.

23. (Original) The method of claim 19, wherein the data indicative of the pattern is indicative of an image of several dies on the wafer.

24. (Original) The method of claim 23, comprising die-to-die image processing.

25. (Original) The method of claim 23, comprising applying image processing to correct for defects in the die image.

26. (Original) The method of claim 25, wherein said correcting comprises dividing the image of the defective die into image parts and replacing the defective image part by a corresponding image part of another die image.

27. (Original) The method of claim 19, comprising, upon providing the reference data, storing said reference data to be used later on for the data processing and analyzing when controlling the current condition of the reticle is needed.

28. (Original) The method of claim 19, comprising, upon producing the reference pattern, storing said reference pattern to be used later on to provide said reference data when controlling the current condition of the reticle is needed.

29. (Currently Amended) A method ~~of controlling the condition of a reticle, the method~~ comprising: using ~~said~~ <u>a</u> reticle when in a satisfied quality condition thereof to produce a reference pattern on an ~~article, and~~ article<u>;</u> using said reticle when in a current condition thereof a certain time period thereafter, to produce a test pattern on the identical article; providing first measured data indicative of the reference

4

pattern and providing ~~a~~ second measured data indicative of the test pattern, and analyzing the first and second measured data to generate output data indicative of the current condition of said reticle.

30. (Currently Amended) A method ~~of controlling the condition of a reticle, the method~~ comprising: inspecting a reference pattern, produced on an article using ~~the~~ a reticle to be controlled when considered to be of a satisfied condition, said inspecting comprising exposing at least a portion of the reference pattern to incident radiation and obtaining first measured data indicative of ~~the~~ a first radiation response of said at least a portion of the reference pattern; selectively controlling a current condition of said reticle a certain time period after the production of the reference pattern, said controlling comprising using said reticle to produce a test pattern on an identical article, exposing at least a portion of said test pattern to said incident radiation and obtaining second measured data indicative of ~~the~~ a second radiation response of said at least a portion of the test pattern; analyzing the first and second measured data to generate output data indicative of the current ~~quality~~ condition of said reticle.

31. (Currently Amended) A system ~~for use in controlling the condition of a reticle, the system~~ comprising: (a) a measuring unit configured for irradiating a sample test pattern produced on at least a portion of ~~a patterned article,~~ an article by a reticle when in a current condition, detecting a radiation response of the sample test pattern, and obtaining measured data ~~indicative thereof;~~ resulting therefrom; (b) a control unit configured for data communication with the measuring unit, so as to be responsive to the measured data ~~indicative of the radiation response of the article~~ corresponding to ~~a~~ the current condition of said reticle, to ~~analyze~~ output results of an analysis of said measured data using ~~certain~~ reference data, ~~and generate output data indicative of the data analysis results,~~ said reference data ~~being indicative of the~~ resulting from a radiation response of at least a portion of a reference pattern produced on an identical article using said reticle, ~~when considered~~ said reference pattern corresponding to ~~be of~~ a satisfied ~~condition.~~ condition of said reticle.

32. (Currently Amended) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to ~~perform method steps of controlling the~~ control a current condition of a reticle, ~~the~~ according to a method comprising: processing and analyzing test data ~~indicative~~ obtained from inspection of a test pattern, said test pattern produced on an article by the reticle when in the current ~~condition on an article,~~ condition, and reference data ~~indicative~~ obtained from inspection of a reference pattern previously produced on an identical article by using said reticle, when said reticle is

5

considered to be of a satisfied condition, and generating output data indicative of the current condition of said reticle.

33. (Currently Amended) A computer program product comprising a computer useable medium having computer readable program code embodied therein ~~of~~ <u>for</u> controlling ~~the~~ <u>a</u> current condition of a reticle, the computer program product comprising a data processing entity for processing and analyzing data ~~indicative~~ <u>obtained from inspection</u> of a test pattern, produced by the reticle when in the current ~~condition~~ <u>condition,</u> on an article, and data ~~indicative~~ <u>obtained from inspection</u> of a reference pattern previously produced on a similar article by using said reticle, when considered to be of a satisfied condition, and generating output data indicative of the current ~~quality~~ condition of said reticle.